

Patent claims

1. Method for separation of chemical substances and/or particles, wherein an electric field is applied to at least one phase of a system with two or more phases, in parallel with the phase boundary.
2. Method per claim 1, in which an additional electric field is applied perpendicular to the phase boundary.
3. Method per claim 1 or 2, characterized in that a microfluid system is used with a plurality of adjoining sheets of two or more different phases and the sheets run parallel to each other.
4. Method for separation of chemical substances and/or particles, wherein an electric field is applied to a microfluid system consisting of a plurality of adjoining sheets of two or more different phases, perpendicular to the phase boundaries.
5. Method per claim 3 or 4, characterized in that different concentrations of a substance having a given physicochemical affinity for the substances and/or particles being separated are adjusted in the phases.
6. Method per one of claims 1 to 5, characterized in that the individual phases are parallel arranged liquid or gel sheets of a thickness in the submillimeter range or smaller.

7. Device for separation of chemical substances and/or particles, with a microfluid chamber (2) and at least one electrode pair (3a, b; 4a, b; 6a, b) arranged on it, wherein the microfluid chamber (2) is filled with at least two nonmiscible fluids (10, 11, 12, 13) or gels in the form of at least one sheet, and at least two sheets have a common phase boundary.

8. Device per claim 7 with at least one additional electrode pair (5a, b), arranged on the microfluid chamber (2) such that an electric field is generated perpendicular to the electric field of the first electrode pair (3a, b).

9. Device per claim 7 or 8 with recesses, which form intake channels (7) for the fluids or gels, as well as the microfluid chamber (2), wherein the intake channels (7) emerge into the microfluid chamber (2).

10. Use of the device according to one of claims 7 to 10 for the separation of biomolecules and/or bioparticles.